CLAIMS

What is claimed is:

1. A method of improving kidney function in a mammal in need thereof, comprising administering to the mammal a composition comprising a therapeutically effective amount of a zvegf4 protein or zvegf4 protein-encoding polynucleotide, in combination with a pharmaceutically acceptable delivery vehicle, wherein the zvegf4 protein is a disulfide-bonded dimer of two polypeptide chains, each of said chains consisting of residues x – y of SEQ ID NO:2, inclusive, wherein the protein is optionally glycosylated, and wherein:

x is selected from the group consisting of 16, 17, 18, 19, 20, 21, 22, 24, 25, 35, 52, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 246, 250, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, and 263; and

y is selected from the group consisting of 365, 366, 367, 368, 369, and 370.

2. The method of claim 1 wherein x is selected from the group consisting of 19, 24, 25, 35, 52, 180, 246, 250, and 258.

3. The method of claim 1 wherein x is 258 ± 5.

4. The method of claim 1 wherein y is 370.

5. The method of claim 1 wherein x is 258 and y is 370.

6. The method of claim 1 wherein x is 250 and y is 370.

7. The method of claim 1 wherein x is 246 and y is 370.

8. The method of claim 1 wherein a zvegf4 protein is administered to the mammal.

9. The method of claim 1 wherein a zvegf4 protein-encoding polynucleotide is administered to the mammal.

10. The method of claim 9 wherein said polynucleotide comprises an operably linked transcription promoter.

11.   The method of claim 9 wherein said polynucleotide is a viral vector or plasmid.

12.   The method of claim 1 wherein the mammal is suffering from acute tubular necrosis.

13.   A method of enhancing proliferation or survival of kidney tubule epithelial cells or epithelial cell precursors in a mammal, comprising administering to the mammal a composition comprising a therapeutically effective amount of a zvegf4 protein or zvegf4 protein-encoding polynucleotide, in combination with a pharmaceutically acceptable delivery vehicle, wherein the zvegf4 protein is a disulfide-bonded dimer of two polypeptide chains, each of said chains consisting of residues x – y of SEQ ID NO:2, inclusive, wherein the protein is optionally glycosylated, and wherein:

x is selected from the group consisting of 16, 17, 18, 19, 20, 21, 22, 24, 25, 35, 52, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 246, 250, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, and 263; and

y is selected from the group consisting of 365, 366, 367, 368, 369, and 370.

14.   The method of claim 13 wherein x is selected from the group consisting of 19, 24, 25, 35, 52, 180, 246, 250, and 258.

15.   The method of claim 13 wherein x is 258 ± 5.

16.   The method of claim 13 wherein y is 370.

17.   The method of claim 13 wherein x is 258 and y is 370.

18.   The method of claim 13 wherein x is 250 and y is 370.

19.   The method of claim 13 wherein x is 246 and y is 370.

20.   The method of claim 13 wherein a zvegf4 protein is administered to the mammal.

21. The method of claim 13 wherein a zvegf4 protein-encoding polynucleotide is administered to the mammal.

22. The method of claim 21 wherein said polynucleotide comprises an operably linked transcription promoter.

23. The method of claim 21 wherein said polynucleotide is a viral vector or plasmid.